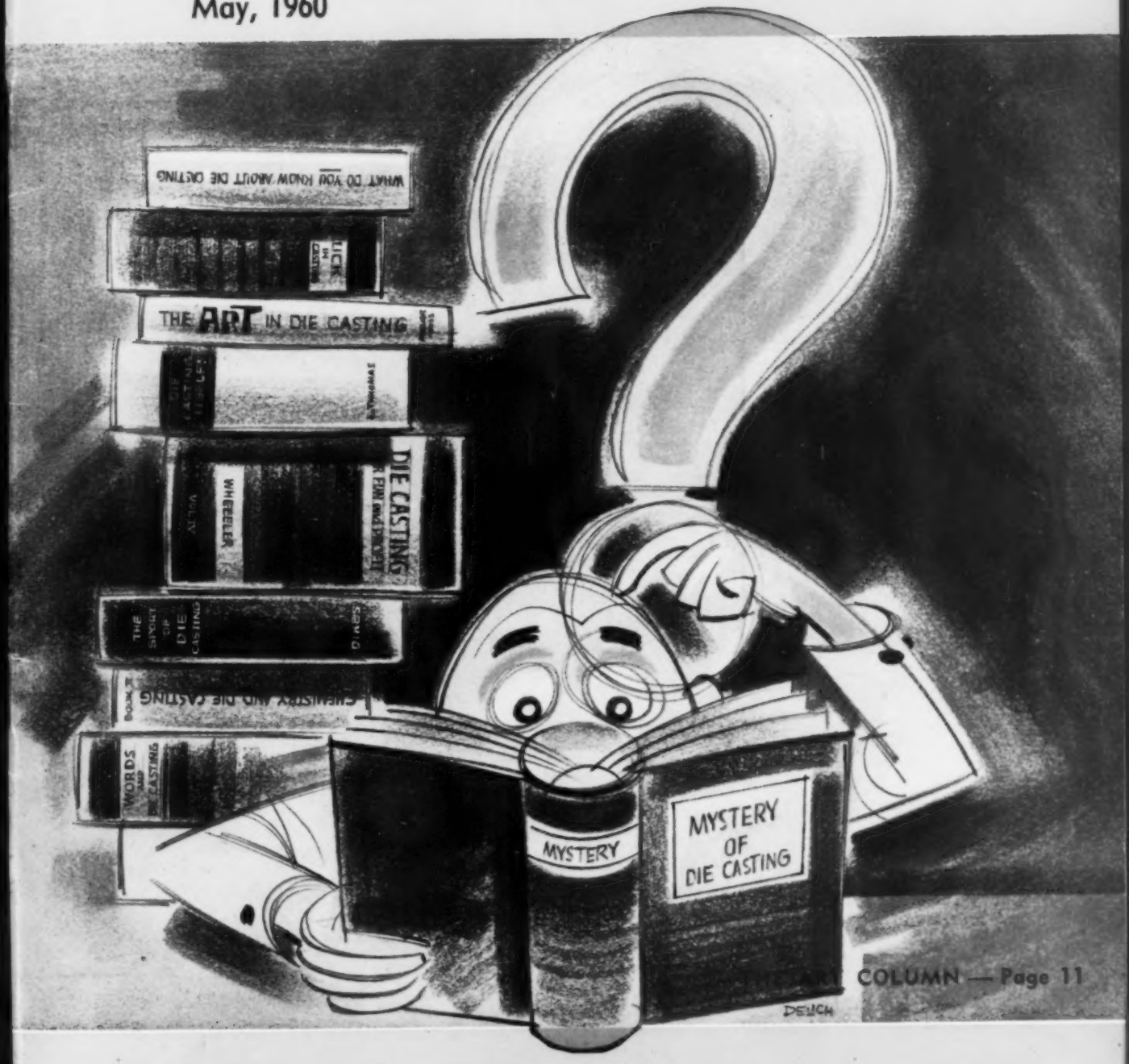
DIE CASTING ENGINEER

May, 1960



ART COLUMN — Page 11

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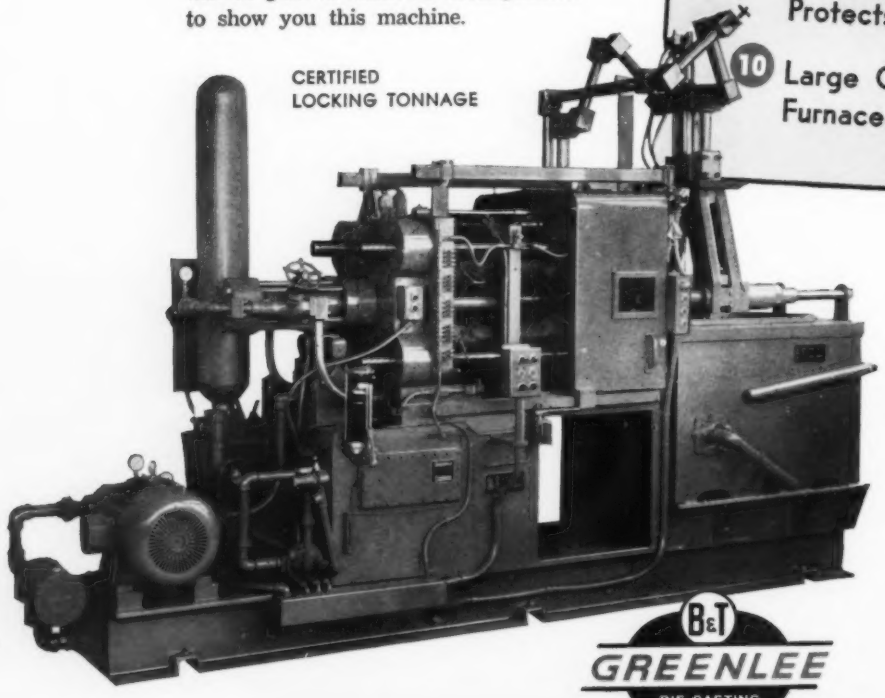

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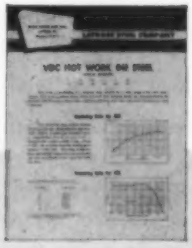

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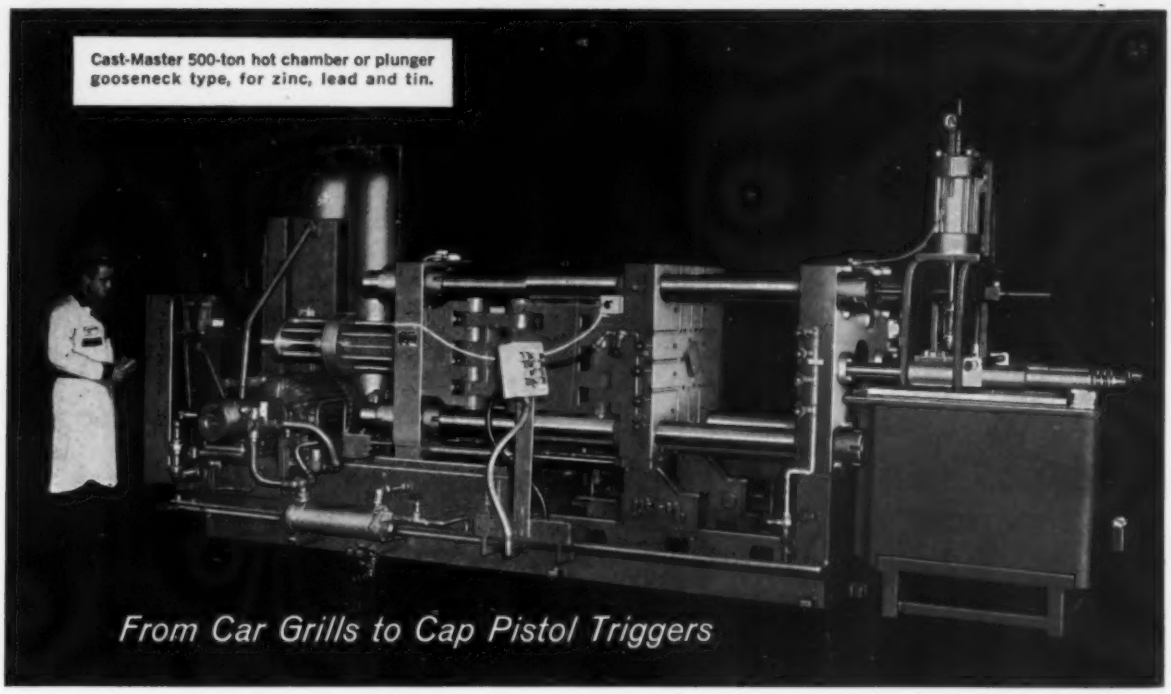

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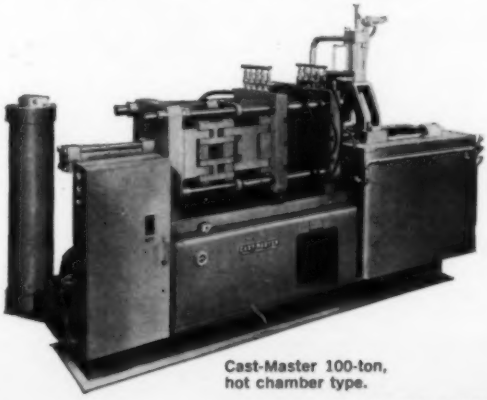

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DIE CASTING ENGINEER

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From . . . the President's Office

As you probably have noted, the DIE CASTING ENGINEER has a new editor. This is part of our program to give better coverage of the developments within our industry and our Society of Die Casting Engineers. In a short article in each issue I will elaborate on the aims of our Society and the progress of our various programs.

I must recognize the efforts of those persons who have brought the S.D.C.E. so far in five short years.

One object of the Society is to improve and disseminate knowledge of the arts and sciences of Die Casting. The articles in the Die Casting Engineer, the speakers at our chapter meetings, and the Technical Conference at our Exposition in November are some of the ways we are expanding knowledge of the die casting process.

While visiting various die casters, I have noted an occasional indication of fear of divulging methods or techniques which might give this caster a competitive edge over another. Such caution must always be maintained in American industry, yet there is a responsibility to cooperate with others in advancing our techniques and educating new people in this expanding industry. A shortage of trained personnel will cause loss of business to other processes, by the mere fact that the others have the personnel to produce the product competitively.

In the April 16 issue of Business Week an article titled "Plastic Wins Another Market From Metal in Automotive Field" explained the conversion of a windshield washer pump from a die casting to a molded plastic part. This loss of business is to another process. Our ability to produce a part in die casting on a competitive basis with plastics, extrusions, stampings, impact extrusions, and fabrics assembled depends largely on the "know-how" of our industry. Again I say we must train people for our producing plants, take some of the "art" out of the process.

The Die Casting Industry must and will expand its customers, techniques and facilities, and develop the personnel to produce this expanded volume on a basis competitive with any other process.

Respectfully yours,

Ollie Clayton

Take a close look...

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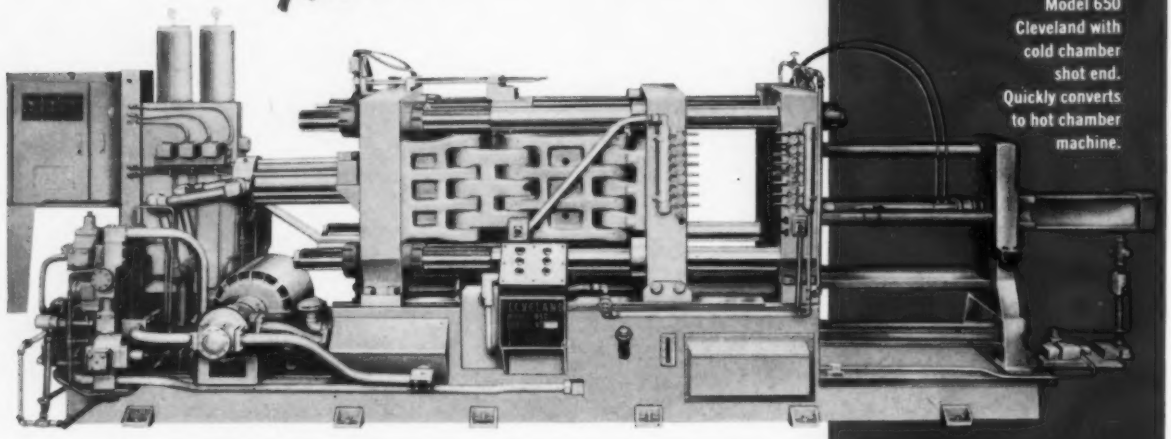

Model 650 Cleveland with cold chamber shot end. Quickly converts to hot chamber machine.

at the model 650 CLEVELAND

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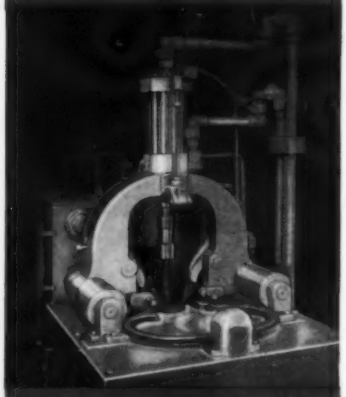
Only a few "650" features are illustrated here, but these are typical of Cleveland's all-over quality construction. For full details, call in a Cleveland sales engineer and write for descriptive bulletin.



New hot chamber shot end. Improved cast steel shot cylinder and gooseneck supports permit quick gooseneck removal. High pressure swivel joints in hydraulic lines.

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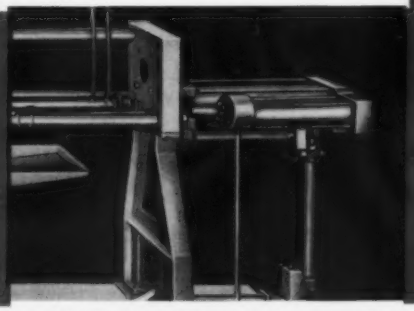

New shot intensifier. Will provide plunger speeds up to 480 ft./min. and pressures up to 26,070 lbs./sq. in. (Both are adjustable.)

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Minimizing Variables . . .

THE ROLE OF THE ACCUMULATOR BOTTLE

By E. W. REARWIN

Chief Product Engineer
For Die Casting

Reed-Prentice Division
Package Machinery Company

THERE ARE MANY VARIABLES in the die casting process. Many of them often are overlooked by operating or engineering personnel of die casting companies. Some of this oversight is due to the lack of information concerning the forces that are being applied, and the time factor in which these forces act.

One of the variables that is responsible for a large percentage of both scrap castings and broken die parts, is the accumulator bottle.

There are three types of accumulators normally used on die casting machines. The most common is the bottle type. The other two are the bladder type, and the piston type. There are several variations of the piston type. Because the bottle type is the one used in ninety per cent of the die casting machines in service, we will discuss only this design in this article.

Charged With Nitrogen Gas

Most accumulators are charged with nitrogen gas. Nitrogen is a gas that is readily available, its reactance is rapid, and it is comparatively safe. The accumulator is used to store hydraulic energy. This makes it possible to use a smaller pump and motor than would be necessary if all of the energy of the shot was taken on the pump at the time the shot is made.

The accumulator operating cycle is rather simple. During the time that the machine is sitting idle, that is, while the operator is removing a casting or lubricating the die, the pump is charging the accumulator to a pre-set pressure. Then, after the die is closed (which is done independent of the accumulator) and the machine is ready to fire the shot, the accumulator supposedly is completely charged with a proportion of gas and hydraulic fluid which assures that the maximum pressure is exerted on the plunger not only during its initial portion of the stroke, but also at the **end of the stroke** when the metal is being finally compacted into the cavity.

The pressure in the accumulator has little bearing upon the action of the accumulator. **Rather,** it is the proportion of gas to hydraulic fluid that controls the final action of the accumulator on the plunger piston. This is a very important point, and is the one factor that is often overlooked by even technically trained personnel.

The impression is that with the pumps running, and a hydraulic gauge on the accumulator showing 1000 psi, or whatever the operating pressure of the system supposedly is, that the accumulator is charged and is working. Nothing could be further from the truth, and nothing can cause more scrap.

Gauge Is Ignored by Many

Most of the manufacturers of die casting machines attach on the side of the bottle type accumulator, a visual gauge. This gauge clearly shows where the hydraulic level in the accumulator is at any time. Many of the operating personnel and maintenance personnel as well, disregard these gauges and remove them at the first opportunity. In many cases they are removed immediately from new machines, before they are put in operation. This is extremely poor practice by a die casting plant, whether it be a small shop or a large one making parts in mass production.

Let us consider what happens with various proportions of gas and hydraulic fluid in the same accumulator. Many of the medium-sized machines have a 25-gallon accumulator installed on the machine. This machine will require about 2½ gallons of fluid for a shot; that is, it requires two and one half gallons of fluid to move the plunger from its "at rest" position to its terminal injection position. Now let us consider a 1000 psi system, using a 7" diameter hydraulic piston and a 2½" metal plunger tip; this is a good composite machine average.

The area of the 7" piston is 38.48 sq. in., therefore 1000 psi pressure will give you a force of 38,480 psi. If you use a 2½" metal plunger tip you must divide the force on the piston by the area of the tip, that is 4.909 sq. in. The result is the theoretical pressure exerted on the metal. In this case, with these figures, this theoretical pressure on the metal would be 7839 psi.

Let us consider that the accumulator is charged to a proportion of 70% gas, and 30% oil, at 1000 psi. The shot is made; we use 2½ gallons for this shot, that is 10% of the total accumulator capacity. This shot drops the fluid pressure delivered to the hydraulic piston from 1000 psi to 875 psi. This drop in pressure occurs at the terminal point of the shot, at the exact point where the greatest pressure is required to give the final squeeze to the metal in the cavity.

Face Up To The Facts

You must now face the actual facts of life in die casting. You thought you had 7800 psi pressure on the metal at this terminal point; actually you only have 6725 psi,

CONTINUED ON PAGE 10 ■

ACCUMULATOR BOTTLE

■ CONTINUED FROM PAGE 9

and this is under ideal conditions, with the accumulator charged to a 70% gas and 30% fluid.

The Table below will show at a quick glance, the various terminal pressures that you have at various accumulator charge proportions. A little study of this chart should readily show why this variable is such a factor in the production of good castings. Also, it may show you why a visual gauge is a must, and why on some days you just cannot get a good casting, no matter what witchcraft the operator may be guilty of.

Terminal pressure has a tremendous influence upon the quality of the castings. It will affect fill of the cavity and it will affect the speed of fill of the cavity. Of even greater importance, it will also affect the porosity of the casting, because the lower pressure does not have the power to squeeze out the gas that is present in the metal.

Die casting plants having castings that shrink, casting that will not fill, or castings that have large areas of porosity, can, by the simple expedient of properly charging their accumulator, make good castings.

Accumulators Necessary

Just because a pump is pumping 1000 psi, does not mean that you have 1000 lbs. pressure at the terminal point of the shot. There is no pump built that has a reactance fast enough to pick up the charge and deliver the pressure at the terminal point of a die casting shot. When we consider that a 0.050-in. gate in aluminum will freeze in under 90 milliseconds (less than 1/10 of a second), it becomes readily apparent that any pump cannot deliver its rated pressure in that period of time. That is why it was found many years ago, that it was necessary to use an accumulator on a die casting machine. If the pumps were capable of having this reaction, it would not be necessary to provide an accumulator. A pump with such a reaction would require a motor with four or five times the capacity of present pump designs. Such a pump would be operating on idle more than 80 per cent of the time.

Most intensifiers do not give satisfactory overall performance. They are not cure-alls. Many intensifiers require the shifting of valves to give the higher pressures that are required. Some of them are so circuited that while the shifting is going on, no pressure is being exerted on the plunger.

There are some good intensifier systems that tend to give higher terminal pressures. They can be beneficial in many cases. However, they are only as effective as the power that is transmitted to them. And this power must come from the accumulator bottle. If intensifiers give continuous pressure, then they are perfectly satisfactory. However, they cannot give the kind of service or make the kind of castings that a consistently charged accumulator will produce.

As Regards Intensifiers

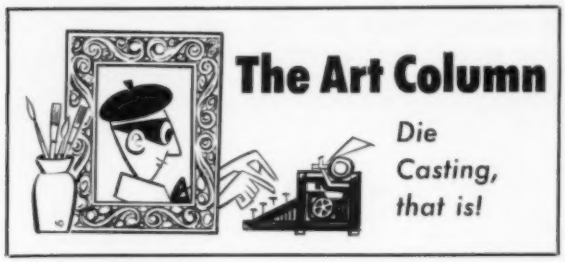
In many of the circuits of these intensifiers, only the difference in pressure is intensified. That is, the intensifiers are capable of producing 3 to 1 pressure at the terminal point of the shot. However, this becomes three times 875, or three times 500. In these cases, the intensifiers are only acting to compound the error that has already been made. When you cannot make a good shot without the intensifier, the accumulator is usually in poor condition. In most cases it has been found that it is perfectly possible to properly charge the accumulator and make just as good a casting as can be made with intensifiers in the circuit.

Prefill or run-around systems do not, in most cases, multiply pressure and should not be confused with intensifiers. They merely act to save volume. They act to drive the plunger forward faster during its point of low loading and exert relatively more pressure during the final phases of cavity filling.

The condition and action of the accumulator is only one of the eighteen known variables in die casting. It cannot be responsible for all of the troubles. However, if these variables are corrected one-by-one, die casting quality can rise and your profits can increase.

CALCULATIONS BASED ON 7" HYDRAULIC PISTON AND 2-1/2" PLUNGER TIP:

MACHINE OPERATING PRESSURE	NITROGEN CHARGE		WORKING RANGE (CONSTANT)		RESERVOIR AT END OF SHOT		HYDRAULIC PRESSURE END OF SHOT	ACTUAL PRESSURE ON METAL	INTENSIFIED 2 - 1	INTENSIFED 3 - 1
	Gal.	%	Gal.	%	Gal.	%				
1000 psi	17½	70%	2½	10%	5	20%	875	6725	13450	20175
1000 psi	15	60%	2½	10%	7½	30%	860	6625	13250	19875
1000 psi	12½	50%	2½	10%	10	40%	833	6400	12800	19200
1000 psi	10	40%	2½	10%	12½	50%	800	6150	12300	18450
1000 psi	5	20%	2½	10%	17½	70%	666	5125	10250	15375
1000 psi	2½	10%	2½	10%	20	80%	500	3900	7800	11700
1000 psi	WHAT YOU THOUGHT YOU HAD							7800 psi	15600	23400



EDITOR'S NOTE: *We are presenting here a group of ideas—of which this is the first. It is planned as a continuing column, a regular feature of Die Casting Engineer, to show typical problems and situations that die casters must and do get into. Our readers are urged to participate in this department, by giving us their experiences, or writing in to tell us what topics they want taken up. Let's hear from you!*

DIE CASTING is oft, and perhaps correctly, referred to as an "Art", rather than a Science. Art, however, takes many forms; even the definition of the word gives great leeway. Webster defines art as "Technical, often magical skill, or as cunning artifice, or as a skill or science". Then of course we have our own abstract art, and the "beatnik" brand.

It can be seen from these deflnitions, that we have great latitude in which to work, and still remain under the all-covering wing of "Art".

The purpose of this column is to try and defIne as much of the "art" of die casting as we can . . . to take it out of the magical skill or cunning artifice class and bring it closer to the skill and science category.

In the column we will answer questions. We will discuss all of the recognized variables of die casting, as well as many of the magic variables. We will do this one at a time, of course.

Many editorials on technical subjects are rather one-sided. You read it, and if you agree, you file it away; but if you disagree, there is nothing you can do except throw it away.

Discussion Invited

We are going to make this an open type of discussion editorial, really let ourselves in for a hard time. We are inviting discussion of all the items we cover. If you have experience bearing on the subject, we will be very pleased to receive it, and we will give careful credit for it. However, if you disagree, we will be just as glad to receive your comments, and we will make every effort to convince you, or to amend our observation.

Any problem presented, we will answer, either in the column or directly. In the case of several questions on the same subject, we will group these and answer in one article.

Any question we cannot answer, either from our own experience or from our collection of die casting data, we will refer to either laboratories, experienced persons, or others who can assist in securing an answer. Everyone whom we have asked has been most generous in agreeing to assist in the program. The only limitation we must make is that of discussion of products. We cannot act to advertise any product; we will be very pleased to receive information on any new product, and if it is possible, to discuss new processes as they affect die casting. Any literature covering any new product or equipment should be sent to the column in care of the Die Casting Engineer. If inquiry is made to the column, and we feel that it cannot be discussed in the column, we will be glad to advise the person making inquiry as to where it may be obtained.

The "Art" of Plunger Lubrication

One of the first variables we would like to discuss in this issue has to do with the "Art" of plunger lubrication in Cold Chamber Die Casting.

Some years ago, a German discovered that if he rapidly compressed a volatile material against a hot spot, he developed an explosion. His name was Diesel, and his principle has done very well in internal combustion engines. Why in the world we wish to try and copy this principle in Die Casting, I do not know. However, to lubricate a plunger, how do we go about it? From observations in hundreds of plants, and from our own experience, we conclude that well over ninety per cent of the plungers are lubricated by the truly "Arty" method. We first mix some kind of a secret gook in an old pail, tomato can, pot, or what have you. To measure it we use paddles, shovels, and just plain guesswork. We mix until it looks right. The principal ingredients are graphite, kerosene, old engine oil, sometimes 600 W, and Naphtha soap. It has been rumored that other weird things have been used; we would like to clear away that rumor, they have.

The proportions of this gook are secret; no one knows what they are from mix to mix, not even the man who mixes it. He uses "Art".

How To Apply The Secret Mix

How is this secret mix applied? Well, that is really an "Art". First, you place the old pot on the edge of the furnace; it gets hot and real thin. The solids settle to the bottom, and the light ends evaporate. Then you take it and hang it on the machine, or set it on the floor. You give the operator a paint brush; in the morning it has an inch of bristle, but by noon it is little more than a metal tipped paddle. He uses this to apply a very exact amount of lubricant inside and around the Cold Chamber. He is attempting to lubricate the area between the plunger and the Cold Chamber wall. However, he places the lubricant ahead of the plunger, inside of the Cold Chamber. If the plunger fits the Cold Chamber as it should, none of the material gets between the walls anyway.

The material is deposited ahead of the plunger; the hot metal hits it, and usually causes a small fire or explosion. While this is going on and the gas is generating very nicely, the plunger goes forward, causing the rest of the material to explode and force the gas into the casting.

The applicator changes from hour to hour; so does the mix, and so does the casting. Even the most "Arty"

CONTINUED ON PAGE 19 ■

FIRST NATIONAL
DIE CASTING
EXPOSITION AND CONGRESS
NOV. 8-11

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● Modern Plant and Equipment

● Highly Skilled Moldmakers

● Over 100 Men to Serve You

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Ultra-Precision MOLDS

We are proud to have won recognition as one of the leaders in this highly specialized field — serving the Die-Casting and Plastics Industries. For more than 25 years, our facilities and services have been utilized by an ever-increasing list of blue-chip companies. We cordially invite you to take advantage of our facilities, our know-how, our reputation for precision-made molds — promptly delivered and economically priced.

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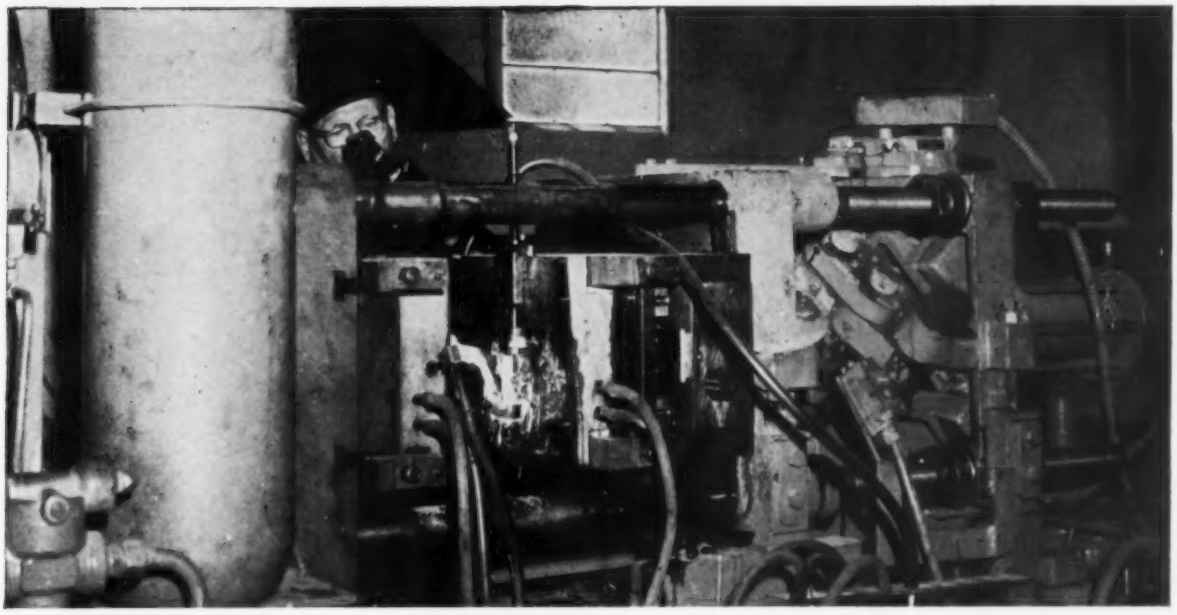
CIRCLE 7 READERS SERVICE CARD

SAVE ON SHORT RUN DIE CASTINGS!

CHANGE DIES IN MINUTES!

With D-M-E Standard Unit Dies for Zinc or Aluminum Die Casting



Cut Die Costs and Save Time with Stock Replacement Units

DIE CHANGES that normally take 3 to 5 hours are done in minutes with D-M-E's Standard Unit Dies for zinc or aluminum die casting.

Standard interchangeable Replacement Units are *in stock* now to reduce your die costs and shorten delivery schedules.

D-M-E's Standard Unit Die assembly offers these unique features for added savings in production time and maintenance:

Construction permits complete freedom on *three sides* of the cavity for placement of cores or cooling lines; six sturdy leader pins and bushings provide accurate alignment and trouble-free performance; and "quick change" wedge clamps for positive positioning of each plate.

Standard Replacement Units are quickly positioned in the Unit Die Holder by a precision T-slot in the mating edge of the plates; there is no interference with the cavity layout.

Whether you require rack and pinion or automatic "bumper-type" ejection, D-M-E has a Standard Unit Die to fit the machine.

D-M-E Unit Die Holders are available for Standard 10″ x 12″ or 12″ x 15″ Replacement Units.

Start saving *now* on your short-run die-casting jobs with D-M-E Standard Unit Dies.

SEVEN BRANCHES FOR FASTER SERVICE

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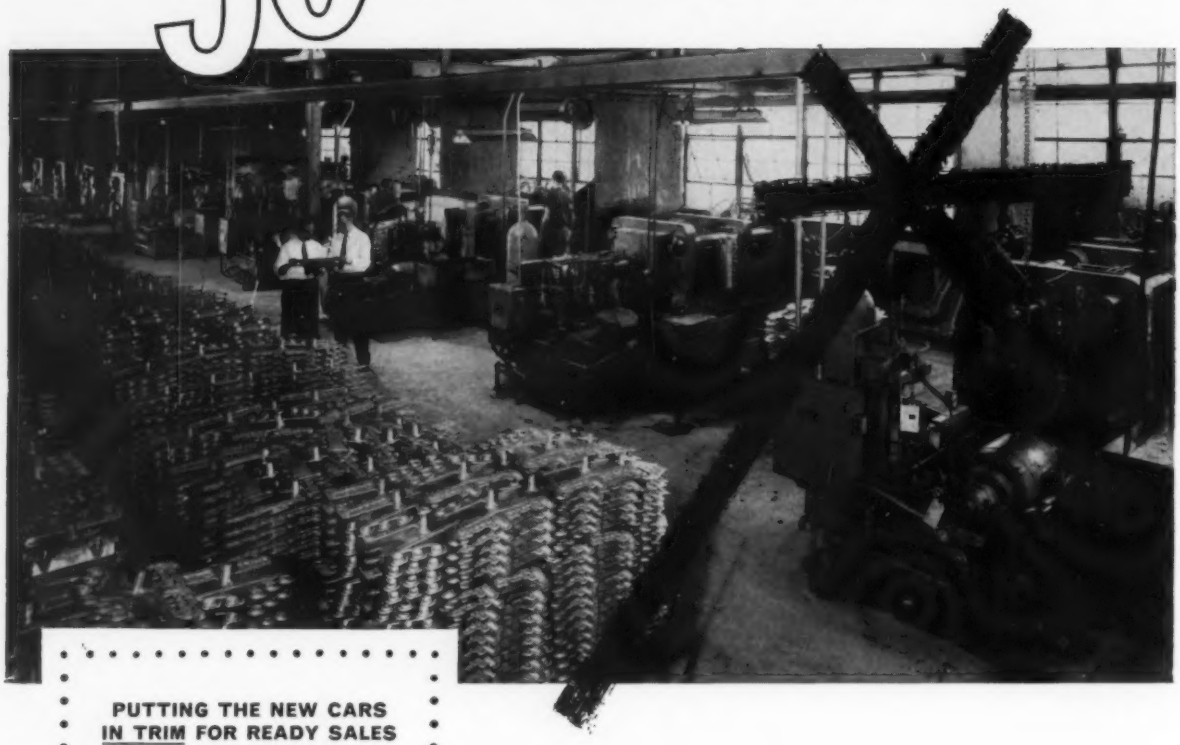
- D-M-E CORP., CLEVELAND: 502 Brookpark Rd.—DAYTON: 558 Leo St.
- D-M-E of CANADA, Inc., TORONTO, ONT.: 156 Norseman Ave.

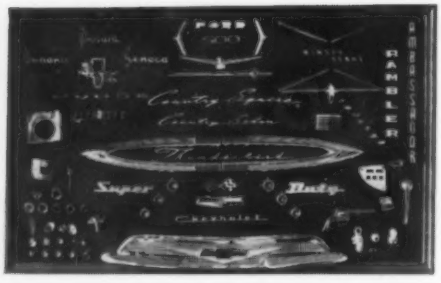
CIRCLE 8 READERS SERVICE CARD

50 million castings a year from these



PUTTING THE NEW CARS IN TRIM FOR READY SALES

At TRILEX MANUFACTURING CO., Wayne, Mich., this efficient battery of 14 KUX Hot Chamber Die Casting Machines (400- and 600-ton) is part of the complete Trilex facilities for modern die casting, fully automatic plating, finishing, and assembling.



KUX die casting machines

"THE PRIMARY concern of the major automobile manufacturers for die-cast trim parts is *quality*," says John Airey, president of Trilex Manufacturing Co., important suppliers in the automotive and appliance field. "That's why we have used KUX Die Casting Machines since 1945. They produce hardware finish quality castings.

"But along with quality," Mr. Airey continues, "auto makers as well as appliance men consider *price*. We've found that KUX machines can be depended on for minimum maintenance and minimum downtime. They put us in a better position to compete on a cost-per-unit basis."

Whether your main concern is lower production costs, higher quality or both, investigate the advantages of KUX Die Casting Machines. 28 all-new strain gauge proven KUX models, 50 to 2000 tons, for both hot or cold chamber operation, available with automatic cycling mechanism and KUX patented "Vac-U-Die" and "Auto Feed" systems of vacuum die casting.

Write for full details of the 28 all-new KUX models illustrated in the latest KUX Die Casting Machine Catalog.

KUX MACHINE CO.

6725 North Ridge Avenue, Chicago 26, Illinois

SDCE Selects Subjects, Names Program Chairmen for Technical Congress Nov. 8-11

The Society of Die Casting Engineers has selected subjects and named program chairmen and session leaders for its Technical Congress this fall. The Congress will be held in conjunction with the First National Die Casting Exposition and Congress to be held in the Detroit Artillery Armory November 8-11.

The Technical Congress will include eight separate sessions — 9:30 a.m. to 12:00 noon and 1:30 p.m. to 4:00 p.m. — in the Armory on each of the four days of the Exposition. Each session will have a minimum of three technical papers and/or panel discussions of the subject involved.

The subjects for the session have been carefully selected by the Society of Die Casting Engineers, based on a recent SDCE industry survey of specific interests in the die casting field. This survey revealed an extremely high interest in the areas of die design and vacuum die casting.

Other subjects in which die casting engineers showed great interest were: Anodizable die castings, die steels, die casting equipment, finishing of die castings, lubricants, automation, quality control, and die casting alloys.

Technical cooperation in the selection of certain papers and authors for the Congress has been extended by the American Zinc Institute, The Magnesium Association and the Aluminum Smelters Research Institute.

Early interest in the Exposition, as evidenced by sale of exhibit space, certainly emphasizes the fact that a most successful show is in the making.

Here is a partial list of the exhibitors:

Alliance Mold Co., Inc.
Apex Smelting Co.
Aldrich Industrial Oils, Inc.
British Industries Corp.
Bendix Aviation Corp.
Carborundum Co.
Crucible Steel Co. of America
Cast-Master HPM Div., Koehring Co.
The Cleveland Automatic Machine Co.
Clifford-Rockwell Co.
Dodge Steel Co.
The Dow Chemical Company
Detroit Mold Engineering Co.
Foundry Magazine
Ford Motor Company
Greenlee Bros. & Co.
Gries Reproducer Corp.
Jervis Corporation
J. A. Kozma Company
Kux Machine Co.
Lester-Phoenix, Inc.
Latrobe Steel Company
Lindberg Engineering Co.
Litemetal Diecast, Inc.
Manco Products, Inc.
Martin Grinding and Machine Works, Inc.
National Lead Co.
Permanent Mold Die Company
Productive Equipment Corp.
Pangborn Corp.
Precision Metal Molding Magazine
Prospect Die and Mold Company
Rebmann Products, Inc.
Reed-Prentice Division Package Machinery Co.
Renite Co.
Rex-Buckeye Company
Frederick B. Stevens, Inc.
Triulzi, S. A., (Milan, Italy)
Universal Corporation
U. S. Reduction Co.
Vesuvius Crucible Steel Co.

CIRCLE 10 READERS SERVICE CARD

ZINC DIE CASTINGS WIN DESIGN AWARDS

J. W. ANDERSON

CREIGHTON E. POOL

BERNARD C. SHARP

First, second and third awards in the "Lighter Than You Think" Zinc Die Casting Contest sponsored by The New Jersey Zinc Company were respectively: Bernard C. Sharp, of University Loudspeakers, Inc., White Plains, New York, for a Hi-Fi Speaker Basket; Creighton E. Pool, Home Laundry Engineering, General Electric Company, Louisville, Kentucky, for a Conical Disk for a speed changing device on a washer-dryer, and J. W. Anderson, Jr., President, Monarch Governor Company, Willow Run, Mich., for a coat-suit hanger.

The contest offered cash awards for the best examples of light-weight, thin-wall zinc die castings utilizing the advantages of the die casting process, combined with the unique qualities of ZAMAC alloys. Any product, assembly or component using zinc die castings of thin-wall construction was eligible and had to be submitted by the designer of the part.

KEnwood 2-7800

SPECIAL MACHINE AND Engineering Inc.

DESIGNERS AND BUILDERS

20000 W. 8 MILE ROAD
SOUTHFIELD, MICH.

DIE CAST DIES STAMPING DIES
SPECIAL MACHINERY
JIGS FIXTURES

CIRCLE 11 READERS SERVICE CARD

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of
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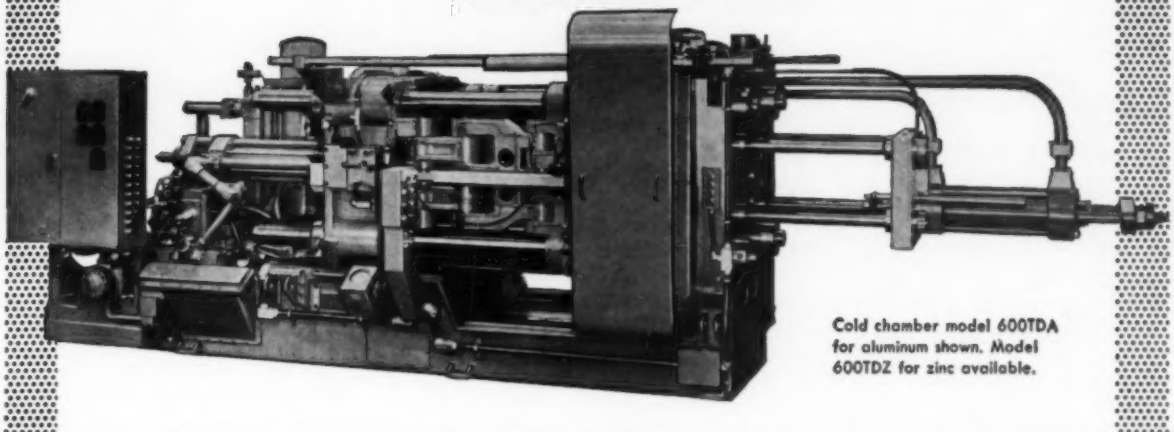
ANDREW HERKOMMER
8939 HUBBELL AVE. BRoadway 3-0023 DETROIT 28, MICHIGAN

CIRCLE 12 READERS SERVICE CARD

New 600-Ton REED Die Caster



Cold chamber model 600TDA for aluminum shown. Model 600TDZ for zinc available.

The all new REED 600 TD, designed for both cold and hot chamber die casting

Reed-Prentice has designed a new 600-ton die caster that will produce the highest quality magnesium, aluminum and zinc castings possible. Available for both cold chamber and hot chamber die casting, the 600-ton REED has 47″ x 46½″ die plates; 28½″ x 28½″ clearance between tie bars; a tie bar diameter of 5½″; and a strain gauge tested locking pressure of 600 tons. Other design and operating features for rugged, efficient, and dependable die casting include:

- Die Stroke adjustable over 6″ of initial stroke, providing an adjustable stroke of 12½″ to 18½″.
- Shot stroke cylinder is adjustable from 14″ to 20″ in order to accommodate different length sleeves.
- Tie bar adjustment is accomplished by use of one retained graduated tie bar nut.
- Tie bars may be pulled or moved forward by hydraulic power using a cam way lock device.
- Electric and hydraulic circuits provide for any type operation.

Ask your REED Sales Engineer today for all the facts about the Reed-Prentice 600 TD and the full line of REED die casting machines.

REED-PRENTICE

division of **PACKAGE MACHINERY COMPANY**

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CIRCLE 13 READERS SERVICE CARD

SDCE Delegation in Europe For International Conference, Visits Die Casting Plants

A delegation of seventy-seven people from the Society of Die Casting Engineers will attend the Third International Die Casting Conference in Stresa, Italy, during the week of May 16-20. While abroad the entire month of May, the group also will visit die casting plants in England, France, Germany, Switzerland and Italy.

The tour was organized for its membership by the Society of Die Casting Engineers, a leading U.S. technical society headquartered at 19382 James Couzens Highway, Detroit 35, Michigan. The chairman of the SDCE delegation is Harry Cagin, president of the Halex Die Casting Company, 8640 Bessemer Avenue, Cleveland, Ohio. Nearly half of the delegation is made up of presidents of leading U.S. die casting firms, and suppliers of equipment, tooling, metals and services for the die casting industry.

Headquarters recently received a note from John L. MacLaren, mailed May 2 in London, W. I. The boys (and wives) arrived safely, as indicated by John's note that all is well in "Foggy London Town."

COLUMBIA
TOOL STEELS

Confidentially, people who *make money* with die casting and extruding dies use ALCODIE (Type H12) hot work steel

Product of Skilled American Workmen

CIRCLE 14 READERS SERVICE CARD

DIE CASTING PLANT
FOR SALE
(OR LEASE)

South Haven, Michigan area. New building—5600 sq. ft. or larger, 5 acres of land on good paved industrial street. Six or more modern die casting machines of make, type and size required, will be furnished and installed with 30-day guarantee. Experienced labor available. Terms arranged, 10 years. This is a good opportunity which will become more apparent upon investigation. — Contact H. Lawson.

We have more than 40 Die Casting machines for sale. All guaranteed

1—Kux Aluminum HP-35, 500 ton. Little used. $12,000.

2—Kux BH-18, Zinc, Complete. Good condition. Each, $6,500.

4—Lake Erie, 300 ton, zinc. Modern.

3—Reed-Prentice, 225 ton, zinc.

Electric and Gas Furnaces of all sizes and makes.

DIECASTERS EQUIPMENT DIVISION
MAGNESIUM INDUSTRIES INC.
1313 Kalamazoo St.
South Haven, Michigan. Tel. 1163

CIRCLE 15 READERS SERVICE CARD

THE ART COLUMN

■ CONTINUED FROM PAGE 11

operator cannot overcome these forces. How anyone in their right mind can justify such an operation, I cannot imagine. It cannot be justified from the standpoint of cost, good housekeeping operator use, or any other good principle. It can only be justified by the excuse of ignorance, and sloppy, just plain sloppy operation, and perhaps, "Art", the beatnik type. Also, perhaps because it has been done this way so many years.

Witchcraft Excites Them

Of course, the answer you often get is, "I cannot make my operators use an automatic system". They have to look like grease monkeys, not machine operators. They believe in witchcraft. They must have both themselves and the machine plastered with gook before they can operate it. They like to see that fire, and hear that explosion when they make a shot. It excites them with childish glee.

You go into most plants, and you must agree. The machines are plastered, the operators are plastered, even the floor and walls are plastered, and they are very busy blowing each casting full of gas. Our only question is, "Are you satisfied with your results? Your Costs? Your Quality?" If you are, then by all means continue. The odd thing is that those who complain the loudest about poor quality, high costs, die breakage, are those who are the greatest offenders.

There are several good automatic metered plunger lubricators on the market. They are all better than a paint brush. Some are more accurate than others. Some have positive metering action, and cannot overfeed or bleed out. You should carefully examine them all and pick the one best suited to your machine, clean up the front end of your machine and insist that it be kept clean!

Now you have the lubricator on, please set it to deliver just enough lubricant to lubricate the plunger on its forward travel; not enough to ever get ahead of the plunger.

The correct method to follow is to make sure that no lubricant ever gets between the head of the plunger and the metal. Any lubricant that does get ahead of the plunger will cause porosity in your casting, it cannot help it. If by "Art" you can control where it is confined, and this area does not harm your casting, fine. However, we all know this is impossible even with "Art".

Don't Lubricate Everything

Remember you are lubricating just the side walls of the plunger in its travel along the Cold Chamber. Again, do not allow any lubricant to get ahead of the plunger or between the plunger and the metal. You cannot help at all by spreading lubricant on the machine, the operator, or the floor.

Do not start out with the idea that you are going to prove it makes no difference. It dose make a great difference. Your stubborn opinion will not change fact, no matter how hard either you or your operator try. Keep the lubricator operating properly, keep the amount used uniform, and keep it right.

The matter of lubricants will be the subject of another discussion. However, do not try and mix the best explosive qualities into your lubricant. Do not try and force porosity into your casting. It can be done, no doubt you are doing it now. Stop it! It costs you money!

You ask, "What proof have you that proper lubrication will improve my castings?" Well, we have helped set up many dies in the last few months; dies that have given trouble. When proper lubrication, properly applied, has been used, the scrap due to porosity has been greatly reduced or eliminated.

In most cases it is eliminated when properly prepared metal has been used. A word of warning here; there are other things that do cause porosity, these must also be controlled.

Proof of The Pudding

In tests run in three separate plants, using dies upon which a record had been kept, we have seen scrap due to casting porosity reduced to ten per cent of previous figures in one case, and eliminated in the other two cases. We also observed a much better surface finish on the castings.

It was also observed in all three cases, that even though the per gallon cost of the lubricant was higher, the overall cost was decreased by more than fifty per cent. The production was also increased because the operator no longer applied the lubricant, and time was saved. The front of the machine looked much better, the operator looked less like a grease monkey and more like a machine operator.

CLIFFORD-ROCKWELL COMPANY
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Detroit 35, Michigan
Diamond 1-8873

COMPOSITION MATERIALS CO., INC.
Crushed walnut shells; corn cobs, high grade sawdust and leather fibres for blasting, tumbling, metal finishing.

WARREN SALES CO.
Producers of the finest mounted points and wheels for deburring and die barbering.

HERMES ABRASIVES DIVISION
United Mineral & Chemical Corp.
A complete line of belts, sheets, rolls and discs on cloth, paper and fiber backings.

CIRCLE 16 READERS SERVICE CARD

FIRST NATIONAL
DIE CASTING
EXPOSITION AND CONGRESS
NOV. 8-11

PEOPLE IN DIE CASTING

New Executives Named at Congress Die Casting

● Appointment of **Milton K. Pitts** as automotive sales manager, **Peter S. Sanders** as plant manager and **John Wazny, Jr.**, as production manager of the Congress Die Casting Division of Tann Corporation, Detroit, is announced by Herman Tann, corporation president. Sanders and Wazny are members of the Society of Die Casting Engineers.

Pitts, for eight years vice president and general manager of Ajax Manufacturing Company, Detroit, previously operated his own company, Rotary Tool and Gage Company, Royal Oak, Michigan.

Sanders, a die casting manufacturing executive since 1942, previously was die casting superintendent at the Rawsonville, Mich. plant of Ford Motor Co. He is a member of the American Society of Tool and Manufacturing Engineers.

Wazny, a graduate of General Motors Institute, was superintendent of die cast operations at Airtex Products, Inc., Fairfield, Ill. He is a member of the Engineering Society of Detroit.

M. K. Pitts

P. S. Sanders

● **William N. Brammer** has been appointed Vice President - marketing — heading sales, merchandising and marketing—of Precision Casting Company, a division of Precasco Corporation. He has an extensive background in metallurgy, metal fabrication and sales.

Brammer holds a number of molding machine patents and has presented several papers on aluminum before SAE, ASTM and AFS groups. He is currently active in these groups as well as the AFS Die Casting Committee. He is a member of the Society of Die Casting Engineers and will also be active in the American Die Casting Institute.

—— DCE ——

● Election of **Jerry I. Solomon** to the position of Vice President in charge of purchasing and of **Richard S. Nufeld** to the post of Vice President in charge of sales of U.S. Reduction Co., East Chicago, Indiana, is announced by Edwin A. Bergman, president.

Nufeld started with the company in 1948 in the Chicago sales territory. He has been an active member of the Society of Die Casting Engineers and the American Foundrymen's Society for many years.

—— DCE ——

● **Thomas J. Bridgeman**, sales engineer in Latrobe Steel's Detroit office for the past 12 years, has been named assistant sales manager for the Detroit district. Bridgeman is secretary-treasurer of the Detroit Chapter of the Society of Die Casting Engineers and a member of the American Society of Metals and of the ASTME.

T. J. Bridgeman

R. S. Nufeld

Belleville Die Shop, Inc.

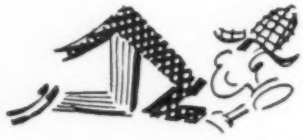
ROMULUS, MICHIGAN

WHitney 1-0920

Die Cast Dies
Plastic and Rubber Molds
Pocket Milling Specialists in
Mold Bases and Cavity
Retainer Sets

DICK WHICHELLO

CIRCLE 17 READERS SERVICE CARD



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Dies & Machines?
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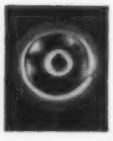
LONGER LIFE . .



from Die Plungers,
Cylinders & Sleeves?

TRY:- LO-SMOKE Die Casting Lubes

Send for samples & technical data.

ALDRIDGE INDUSTRIAL OILS, Inc.

3401 W. 140th St., CLEVELAND 11, OHIO

CIRCLE 18 READERS SERVICE CARD

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Mfrs.
of

Zinc Base Die Cast
Alloys
No. 2
No. 3
No. 5
Zinc Ball Anodes

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DETROIT 12
TO 8-6903

CIRCLE 19 READERS SERVICE CARD

PEOPLE **********

IN DIE CASTING

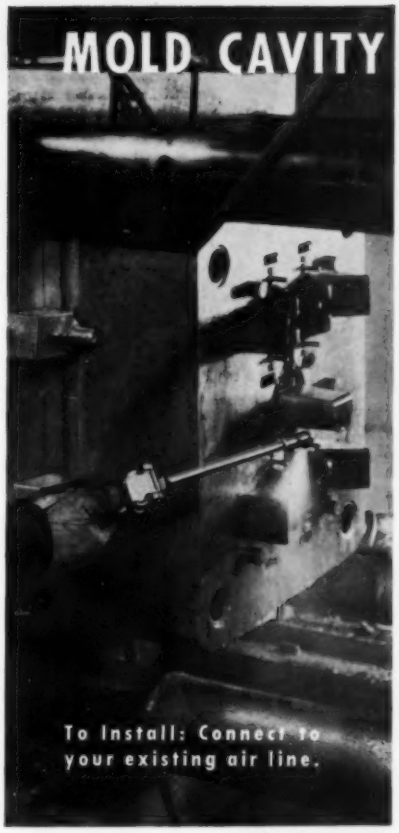
● **Harold E. Green** has been named managing director of MODERN CASTINGS, international technical publication for the metal castings industry. The magazine is published by the American Foundrymen's Society, Des Plaines, Ill. Recently he has been executive editor of MEDIA/SCOPE.

—— DCE ——

● Appointment of **James F. Stevenson** as Technical Representative for Newton-New Haven Company, West Haven, Conn., is announced by Harry Bollman, Sales Manager. Since 1945, Stevenson has worked in the die casting field with some of the largest manufacturers in the country, and has had considerable experience in value analysis.

—— DCE ——

● **Jack A. Stevens** has been appointed Eastern Division Sales Manager of Roto-Finish Company, Kalamazoo, it is announced by president G. W. Balz. Recently sales representative in the Dayton area, Stevens will supervise sales activity in New England, the Eastern Seaboard states and part of the Midwest. James A. Harrison has been named Roto-Finish representative in the New York and New England area.



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The PIERCE-WALLER 2-stage spray gun, with its adjustable spray density, delivers a cavity cleaning and cooling blast of air, and deposits a controlled spray mist in the mold . . . in one simple operation!

The P-W AIR LUBE SYSTEM consists of a 1-trigger, 2-stage gun, and a pressurized lubricant tank engineered to automatically agitate the lubricant release-agent before it is applied to the mold cavity.

. . . assures safe, clean, efficient conditioning of the cavity surfaces . . . insures the ejection of usable die castings in either small, medium or large production lots . . . extends mold life.

For immediate information concerning price and delivery write:

PIERCE-WALLER COMPANY
KETTERING P. O. BOX 2121A
DAYTON 9, OHIO

CIRCLE 20 READERS SERVICE CARD

SUPREME IMPRESSION & MOLD CO., INC.

23080 GROESBECK HIGHWAY • WARREN, MICHIGAN

PHONE PRescott 8-2200

Designers and Builders of Die Cast Dies Exclusively

JOB WORK FOR HYDROTELS

CIRCLE 21 READERS SERVICE CARD

P. M. D.

Designers & Builders of

DIE CASTING DIES
AUTOMATED PERMANENT MOLDS
SPECIAL ALUMINUM FOUNDRY MACHINES

PERMANENT MOLD DIE COMPANY, INC.

2275 E. Nine Mile Road **SLocum 7-8100** Warren, Michigan

CIRCLE 22 READERS SERVICE CARD

Chapter News

DETROIT

1 There is considerable activity in and around Detroit these days. June is a big month for die casters. On the seventh we will be privileged to hear Mr. Earl Rearwin of Reed-Prentice speak on "Factors Involved in Gating Aluminum Die Casting," a subject of high controversy which should arouse much interest. Dinner will be at 7:15 P.M.

Polish up your clubs for the Society golf party June 18 at the Bonnie Brook Golf Club at Eight Mile and Telegraph. Tee-off will be from 8 to 9, 10 to 11 and 12:30 to 1:30. Par for the course is 63 and we can play 18 holes in the afternoon with no reservation and at no extra cost! Other activities for non-golfers include horseshoes, ping pong, cards, baseball, spin rod casting and loafing.

Prime ribs of beef, the kind you like, will be served at 6:30. Retrogressing a bit, we remember the fine address by Mr. Jack Wallace of the Case Institute of Technology, on "Melting Practices and Properties of Aluminum and Zinc Base Alloys," on May 3, and of course, the annual sales meeting on April 5 featuring Mr. J. E. Bryson of Titan Metal, who spoke on "Brass Die Casting Today." On March 1, our dinner speaker was Mr. John M. Atols who gave us a glimpse into the "Die Casting Industry of Tomorrow."

SAGINAW VALLEY

2 We are kicking off our first annual stag day affair on July 16 at Brookwood Golf Club with coffee and donuts from 7 to 9 for the hungry ones, tee-off at 7 A.M. There will be prizes for lowest score and longest drive. Other activities include horseshoes, volley ball, cards and baseball. Dinner at 6:30.

At the April 20 dinner meeting, Mr. L. V. Klaybor of Allegheny Ludlum Steel Corporation addressed the Saginaw group on "Hot Work Die Steel and its Relation to Casting Quality." This was a fine presentation which proved most helpful in our effort to gain understanding.

Highlight of the March 16 meeting was a film and discussion by Mr. N. Sheptak of the die cast research department of Dow Chemical Company on the melting and casting process in die casting magnesium alloys. The color-sound movie was entitled, "Make Way for Magnesium." Most interesting!

WESTERN MICHIGAN

3 Following the March 18 dinner-dance held at Green Ridge Country Club, the April 12 meeting featured an illustrated talk by Mr. Maurice R. Caldwell, manager of the finishing division of Doehler-Jarvis Division of National Lead on the "Evaluation of Modern Methods of Finishing Zinc Die Castings for Improved Corrosion Resistance." Mr. Caldwell has previously presented this paper before the American Zinc Institute in Detroit.

TOLEDO

4 Starting with the most recent meeting, on May 10 we were fortunate to have Mr. Denis Nankivell of Reynolds Metals speak to us on "The Future of Aluminum Die Castings in the Automotive Industry."

On April 12, our dinner speaker was Mr. David Morganstern, president of Nelmore Manufacturing Co., who gave an **illuminating** address on "Producing Aluminum Die Castings for Anodizing, or Casting the Uncastable Pure Aluminum." These aluminum alloys that can be diecast and anodized have been under development for some time and it was of great interest to hear the latest word on the subject.

A panel discussion on "Die Design and Gating" stimulated our thinking at the March 8 meeting. Panel members included Mr. Harold Steinman of Schultz Die Casting, Mr. Peter Sanders of Congress Die Casting and Mr. Norman Leach of Norman Leach Associates.

CHICAGO

5 In case you have forgotten to mark your calendar for the Third Annual Golf Outing at Glendale Country Club, Thursday, June 30, take time to do it now. Remember all the fun we had last year? Well, this year it will be even better! And prizes will be awarded for the Technical Papers Contest.

At our May 5 dinner meeting, Mr. Robert A. Ridout of Kaiser Aluminum spoke on the "Application of Aluminum Alloys." Mr. John A. Weber of Dixie Die Cast Corporation covered a three-fold subject in his April 7 address. His topics were, "New Developments and Applications in Color Anodizeable Aluminum Alloys," "Casting Troublesome Alloys" and "Histalloy." As an added feature a film on "The Elox Process" was shown.

Tool and Die-Builder's Night was held on March 3, featuring Mr. Richard V. Ott, plant superintendent of PENCO, who presented the patented Ott Process, a three-phase innovation for the production of tools and dies. He was assisted by Mr. Robert Shaller.

CLEVELAND

6 By the next issue, we hope to have news of meetings to come. On April 26, our dinner meeting was highlighted by an address by Mr. Denis Nankivell, automobile development engineer and metallurgist for Reynolds Aluminum Company who spoke on "The Future of Aluminum Die Castings in the Automotive Industry."

Chapter News

NEW YORK

7 Addressing our April 27 dinner meeting, we were most fortunate to have Mr. Arthur Sholz of Crucible Steel speak on the various steels and their properties, from the low alloy type through the H-13, as required by the die casting industry. He also described modern manufacturing methods now being used to produce these steels.

Mr. Charles W. Ohse, president of New England Die Casting, shared his vast experience with us at our dinner meeting on March 23 when he spoke on "A Simplified Low Cost Vacuum Die Casting System."

CENTRAL NEW YORK

9 "Everyday Problems of Fundamental Importance Frequently Overlooked Which Can Substantially Improve Casting Quality" was the timely subject of Mr. James B. Kelley, of Rex Buckeye Co. and Die Casters Service Div., at our March 29 meeting held at Drumlins Country Club.

NEW ENGLAND

18 Put a circle around June 17 on your calendar which has been set aside for Ladies' Day. There will be a buffet supper at the Publick House followed by an informal talk on the European tour and conference at Stresa.

On April 28, an address on "Materials for Die Casting Dies and Associated Tooling" was given by Mr. Arthur E. Scholz, of Crucible Steel Co., and the March 24 meeting was headed by Mr. Charles Ohse who spoke on "Vacuum Die Casting as Practiced at New England Die Casting Company."

INDIANA

25 Mr. Edwin J. Pietrowicz, senior production engineer for Brown-Lite Chapin Division of GMC showed a film and gave a talk on the study of flow characteristics of Bismuth type allow in a die cast cavity at the May 7 dinner meeting at the Elks Club.

On April 14, Mr. Irving Kaplan, chief engineer for Lax Industrial Products, spoke on the subject of "Hydraulic Muscles for Die Casting." This presentation covered operation of hydraulic pumps and valves, hydraulic circuits and the desired properties of hydraulic oils.

"Precision Casting of H-13 Steel by the Shaw Process" headlined the talk by Mr. Irwin Lubalin at the dinner meeting held on March 10.

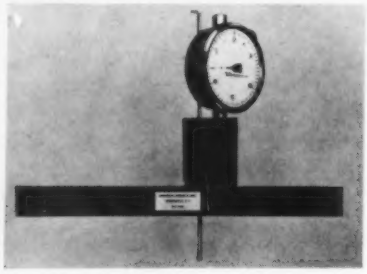
More Chapter News Welcomed by DCE

We are pleased to observe that all SDCE chapters are having good activities of late. Many have put even more effort behind their technical programs.

Many chapters are planning golf stag days designed to keep interest high as concerns the Society through the summer.

All chapters are appointing a reporter so that the flow of chapter news from each chapter area can be expanded. So we confidently anticipate much better coverage of what is going on among SDCE men in local areas.

Any newsworthy items are welcomed by the Die Cast Engineer to build fellowship and keep SDCE members better posted on the Society's activities.



Dial Depth Gage Features Rod for Checking Depth

▲ A reversible rod for checking depth or groove location is a feature of a new, patented adjustable Dial Depth Gauge announced by Versatility Products Corp., Poughkeepsie, New York.

Latitude of measurement is provided by a standard base. An indicator housing unit to which as many as four gages can be added for multiple checking of depth and groove location is another feature.

The gage is manufactured with six inch depth rod, but the length can be varied to meet individual requirements. Spring tension can be reversed on depth rod for checking either face of groove location.

CIRCLE 23 READERS SERVICE CARD

—— DCE ——

REDUCE COSTS WITH

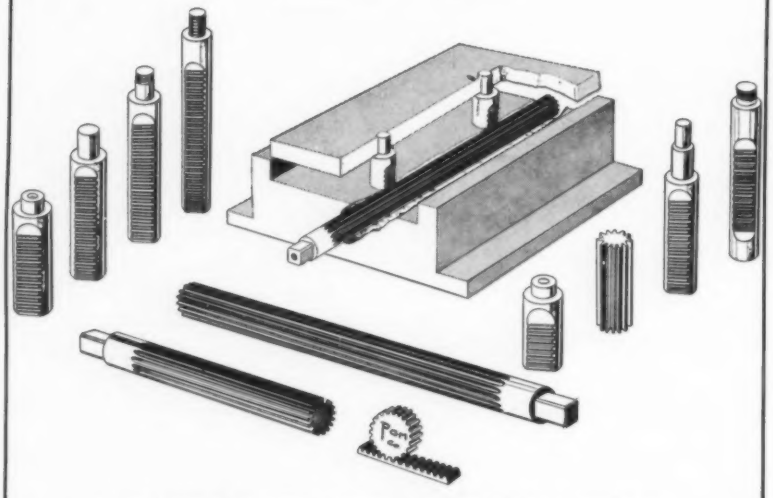
PEERLESS *"FLAME-A-LOY"

PINIONS & RACKS

FOR

DIE CASTING MOLDS *PERMANENT MOLDS*

PLASTIC MOLDS



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CIRCLE 25 READERS SERVICE CARD

Aluminum Die Cast Heel Shaft Is Aid To Fashion

▲ As a die casting contribution to fashion, an aluminum die cast heel shaft designed and cast by The Newton New Haven Co., solved a shoe heel manufacturer's problems. The former all-wood heel was inherently weak, good wood was difficult to obtain and expensive, the nailed-on leather lift eventually loosened. The die cast design solved these dilemmas and gave the manufacturer an added feature. A hole running up the heel shaft, cast into the item simultaneously, provided space for the insertion of a wooden plug to which the leather lift could be fastened.

CIRCLE 24 READERS SERVICE CARD

—— DCE ——

FIRST NATIONAL
DIE CASTING
EXPOSITION
AND CONGRESS
NOV. 8 - 11

New Finishing Process Testing Machine Offered By Acme

▲ Study and evaluation of finishing process variables is aided by a new finishing process testing machine designed for that purpose by Acme Manufacturing Company, 1400 E. Nine Mile Road, Detroit 20, Michigan. It especially fits the needs of manufacturers of buffs, compounds and base metals, as well as metalworking finishing plants and departments.

A production model of an experimental prototype delivered to the American Electroplaters Society in 1957 for use in research programs, the machine occupies floor space of some ten feet by five feet. Height is about seven feet overall.

CIRCLE 26 READERS SERVICE CARD
—— DCE ——

▲ A convenient slide rule comparator, listing complete details on office copying machines made by ten different manufacturers, is available free from Dept. S9-462, **Minnesota Mining and Manufacturing Co.**, 900 Bush Avenue, St. Paul 6, Minnesota.

CIRCLE 27 READERS SERVICE CARD
—— DCE ——

Technical Literature

Hydraulic Accumulator Bulletin by Parker

■ How and why accumulators are used in a variety of hydraulic systems is explained in a new folder issued by Parker-Hannifin's Parker Hydraulic Division, 17324 Euclid Avenue, Cleveland 12, Ohio. The bulletin includes description and technical data on Parker piston-type accumulators ranging in capacity from 10 cubic inches to 10 gallons.

CIRCLE 28 READERS SERVICE CARD
—— DCE ——

Denison Eng'g. Publishes Pumps, Controls Catalog

■ Full design details and operating characteristics on the complete line of hydraulic pumps, fluid motors and valves of the Denison Engineering Division, American Brake Shoe Company, are given in their new comprehensive 72-page catalog.

Special sections are devoted to: axial piston type; hydraulic pumps, vane type; pumping units; fluid motors, axial piston type; fluid motors, vane type; four-way directional control valves; check valves; electro-hydraulic pressure control valves; and pilot operated pressure control valves; surge damping valves; and flow control valves. Cut-away illustrations are in color.

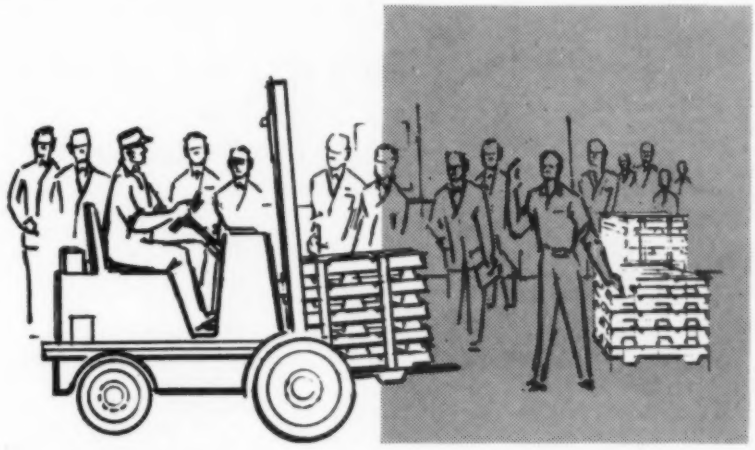
CIRCLE 29 READERS SERVICE CARD
—— DCE ——

Machinery Mounts Described in Bulletin

■ All types of machinery mounts are described in a six-page bulletin published by Unisorb Division, The Felters Company, Boston, Mass. The bulletin describes three basic types; Unisorb pads; Level-Rite and Level-Rite "UL". It also tells how they are claimed to control vibration, simplify and reduce costs of machine installation, permit easy machine re-location, and allow machines to operate at higher speeds and perform more accurately. Details on a new "do-it-yourself" leveling mount also are included.

CIRCLE 30 READERS SERVICE CARD

FIRST NATIONAL DIE CASTING EXPOSITION AND CONGRESS NOV. 8 - 11



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You don't need big-company equipment to get palletized service from HB&S. Our delivery trucks not only have hydraulic tailgates to drop the palletized material to sidewalk level, but also carry along a small hand-operated hydraulic lift-truck to roll the material to any point **within your plant!**

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Smelters and Refiners of Aluminum, Bronze, Brass, Zinc, Lead

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Write NOW for this FREE reference book and guide to help you in selecting your die castings alloys. It's loaded with FACTS.

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CIRCLE 31 READERS SERVICE CARD

NEWS of the INDUSTRY

Harvey Aluminum Reveals Expansion, Financing Plan

Harvey Aluminum (Incorporated) has announced that it is expanding its aluminum reduction capacity by 25 per cent and making substantial additions to its fabricating facilities. The Torrance, Calif. concern is one of the six producers of primary aluminum in the United States.

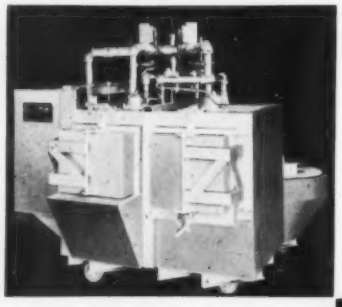
The reduction plant, located at The Dalles, Oregon, last year produced some 58,000 tons of primary aluminum. The company has filed a registration statement with the SEC for the sale to the public of 750,000 shares of A common stock to finance expansion and provide working capital. Net sales for the fiscal year to September 30 last were $60,886,000 and its net profits were $4,481,000.

KOZMA

NEW! RADIANT ALUMINUM MELTING and HOLDING FURNACES

UNEQUALLED FOR LOW POROSITY ALUMINUM CASTINGS

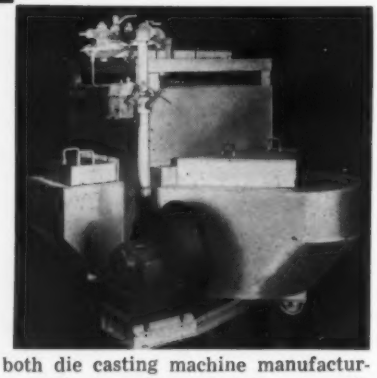
Model RSHCH Melting Furnaces feature the Kozma exclusive "Pre-Temp" charging and sub-surface metal flow virtually eliminating hydrogen pick-up and oxide inclusions, keeping metal at high purity level.



Radiant panel firing provides faster, more uniform heat distribution, eliminates flame impingement and reduces fuel costs. Model RSHCH Furnaces range in capacity from 300 to 2,000 lbs. per hour with design variations to meet your requirements.

MODEL RH HOLDING FURNACES

are specially designed for use with vacuum or non-vacuum aluminum die casting machines. Roller bearing wheels and a unique dipwell permit integral installation as part of the die casting machine. Bath capacities and dipwell design to meet your requirements.



Kozma Melting and Holding Furnaces are being specified by both die casting machine manufacturers and aluminum producers where highest quality metal is a "must".

There is a Kozma Radiant Aluminum Furnace for every melting and holding need. Write today for complete information.

Also available from Kozma—
New Automatic Ladling Unit
Low Cost — Fast — Accurate

INDUSTRIAL PROCESSING FURNACES SINCE 1928

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CIRCLE 34 READERS SERVICE CARD

H. Dale Long of Scully Jones Newly Elected President of ASTME

H. Dale Long, president and chairman of the board, Scully Jones and Co., Chicago, has been elected president of the American Society of Tool and Manufacturing Engineers. Active in ASTME since 1943, Long has held various offices in the Chicago Chapter and the national organization. He will succeed Wayne Ewing, president, Arrowsmith Tool and Die Co., Los Angeles, as president for 1960-61.

Other officers elected are: William Moreland, vice president F. E. Myers & Bro. Co., 1st vice president; David A. Schrom, works manager, York Division, Borg-Warner Corp., 2nd vice president; and Philip R. Marsilius, vice president, Producto Machine Co., 3rd vice president.

—— DCE ——

Handy Die Cast Decimal Equivalent Chart Card From Newton-New Haven

▲ A useful die cast zinc alloy decimal equivalent card is being offered free by The Newton-New Haven Company, West Haven, Conn. The numerals on the chart are in raised yellow letters against a black background for quick, easy reading. Of standard calling card size, it weighs 6½ ounces. Useful also as paper weight, book mark to hold down pages, and other similar purposes.

CIRCLE 32 READERS SERVICE CARD

—— DCE ——

New 1000-ton Aluminum Cold-Chamber Die Casting Machine Built by B & T

▲ A new 1000-ton aluminum cold-chamber die casting machine that checks out at 1200 tons lock-up pressure on the strain-gauge test, has been built by the B & T Die Casting Machinery division of Greenlee Bros. & Co., Rockford, Illinois. Weight is 85,000 pounds. Dimensions 8½ feet x 26 feet, height 10 feet. Exceptional platen stability is said to result from the exclusive four-corner linkage that provides full support for the die. Platens are five feet high, five feet wide and one foot thick. The four tie bars are eight inches in diameter.

CIRCLE 33 READERS SERVICE CARD

FIRST NATIONAL DIE CASTING EXPOSITION AND CONGRESS NOV. 8 - 11

NEWS of the INDUSTRY

The Rockwells Head For Europe and the Olympics

Dean L. Rockwell, immediate past president of the Society of Die Casting Engineers will be leaving soon for Europe with Mrs. Rockwell. The culmination of his trip will be the Olympic Games in Rome, where he will be officiating at the wrestling championships.

—— DCE ——

SDCE SUPPORTING COMPANY MEMBERS

SUSTAINING MEMBERS

American Mold Engineering Co.
Atois Tool & Mold Corp.
Braeburn Alloy Steel Corp.
Cast-Master, Incorporated
Chrysler Casting Plant, Chrysler Corporation
Clinton Engines Corp.
Congress Die Casting Division, The Tann Corp.
Crucible Steel Company of America
Cuyahoga Industries
Dodge Steel Company
Double A Products Company
J. R. Elkins, Inc.
Process Development Section
General Motors Corporation
Kux Machine Co.
Latrobe Steel Company
Lester Engineering Co.
Permanent Mold Die Co., Inc.
Reed-Prentice Division, Package Machinery Co.
Universal Die Casting Division,
Hoover Ball & Bearing Co.

COMPANY MEMBERS

Alignment Engineering Co.
All State Industries, Inc.
Aluminum Die Cast Foundries, Inc.
Atlantic Chemicals & Metals Co.
B & K Tool Co.
B & T Machinery Company
Briggs & Stratton Corp.
Central Die Casting & Mfg. Co., Inc.
H. Cohn & Sons
Columbia Engineering Co.
Conneaut Die Casting Co.
Detroit Mold Engineering Co.
Disdie Steel, Incorporated
Dominion Die Casting Ltd.
Dort Manufacturing Co.
Formax Mfg. Corp.
Johnson Motors, Outboard Marine Div.
Gasser Engineering Co.
Girard Mfg. Company
Grand Rapids Die Casting Co.
Gries Reproducer Corp.
Guild Platers Co., Inc.
Hall Steel Co.
Henning Bros. & Smith, Inc.
Holland Die Casting Co., Inc.
E. F. Houghton & Co.
Irrigation Equipment Co., Inc.
Lake Erie Engineering Co.
R. Lavin & Sons, Inc.
Lindberg Engineering Co.
Lindberg Steel Treating Co.
Martin Grinding & Machine Works, Inc.
Northern Tool & Die Co.
Ostrom Tool Company
Prospect Die & Mold, Inc.
Quad-City Die Casting Co.
Roth Smelting Company
Frederic B. Stevens, Inc.
Universal Cyclops Steel Corp.
Hawthorne Works, Western Electric Co.
Wabash Smelting Inc.
Western Electric Co., Inc. (Baltimore)
Western Electric (Chicago)
Wico Electric Co.
Charles Zapf & Co.

Philadelphia Foundries Hosts To U.S. and Foreign Visitors To AFS Congress and Exposition

More than a dozen leading foundries in the Philadelphia area held "Open House" for thousands of U. S. and foreign foundrymen that attended the AFS Casting Congress and Exposition May 9-13. Through the 14 companies participating in the tours, a number of them employing the latest techniques and operating methods, virtually every type of casting and its production methods was viewed by visiting foundrymen. These included steel, malleable, ductile and gray iron, brass and bronze, aluminum, magnesium, die castings, pattern-making and other processes.

Among many foreign speakers from Russia, England, Belgium and Australia, R. R. Woodward and H. J. Proffitt presented a report on British die casting practices in aluminum sponsored by The Institute of British Foundrymen.

All in all, 67 companies featured equipment in operation at Convention Hall. Practically every operation in a modern, well-equipped foundry was demonstrated, from pattern making to electronic, non-destructive testing of finished castings.

Equipment buyers and sellers from more than 20 foreign countries were scheduled to attend or exhibit.

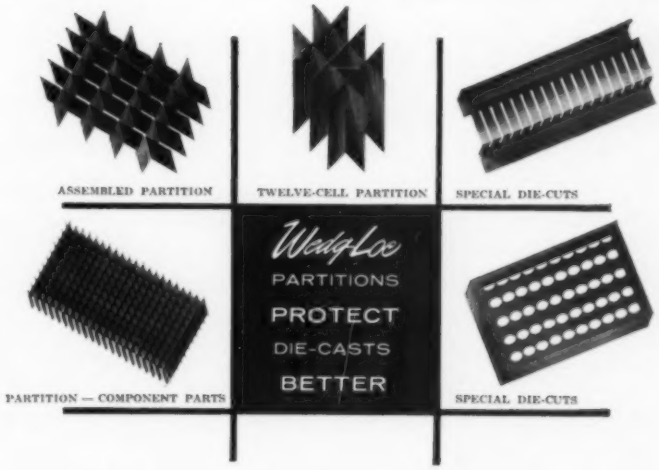
—— DCE ——

Westgate Triples Capacity

Westgate Design Service, Inc. has moved to new offices at 1149 Kenmore Blvd., Akron, Ohio and now have facilities to triple their working capacity, according to President John Slabaugh. The company specializes in die cast design for industry in Ohio and surrounding states.

In Memoriam

We note with regret the passing of Frank J. Condit of Ferndale, Michigan, a good member of the Society of Die Casting Engineers, and a friend of everyone.



WEDG-LOC CARDBOARD PARTITIONS, DIE-CUTS, AND PADS protect polished and plated die-cast parts from scratching. They reduce packaging time, and assure accurate count.

TELL US YOUR NEEDS

W. J. Bradford PAPER COMPANY SINCE 1924

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CIRCLE 35 READERS SERVICE CARD

FIRST NATIONAL DIE CASTING EXPOSITION AND CONGRESS NOV. 8 - 11

NEWS of the INDUSTRY

Slab Zinc Consumption Rising With Uptrend in Die Casting, Galvanizing

Overall U.S. consumption of slab zinc in 1959 climbed 7½ per cent over 1958, and a further marked increase is forecast for this year, due to upward trends in die casting and galvanizing. The trends were cited by John L. Kimberly, executive vice-president of American Zinc Institute, Inc. The Institute has recently moved to new and larger offices at 292 Madison Avenue, New York 17, N.Y.

According to Kimberly, in "A Review of the Zinc Industry in the United States During 1959," strong gains were made in the consumption of zinc for brass, die casting and for French Process zinc oxide. Slab zinc consumed for zinc-base alloys, principally employed for die casting, reached 370,330 tons, a jump of 17 per cent over the 316,830 tons consumed in 1958.

Kimberly based his forecast for excellent consumption prospects in part on the uptrend in die casting. In this area he noted that zinc's position has been strengthened materially in the automotive market as a result of dramatically upgraded electroplating techniques of special relevance to die cast zinc automotive components. He pointed to the returning trend among major car makers to die cast zinc radiator grilles, dashboard panels, as well as the numerous other automotive parts traditionally made as zinc die castings.

PDM Quality EJECTOR PINS

1. Cut DOWN-TIME 50%—75%!
2. Proven ability to stand-up better in zinc, aluminum, and magnesium die casting.
3. Can be ground from the solid into CORE PINS without rehardening after grinding.
4. Complete stock of all fractional & letter sizes 1/16"—1".

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EJECTOR PINS — CORE PINS
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WATER COOLED SPRUE SPREADERS AND NOZZLES (BUSHINGS)

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CIRCLE 38 READERS SERVICE CARD

Benefits of SDCE

The benefits of membership in the Society of Die Casting Engineers, and attendance at its meetings, is pointed up in a paragraph in a welcome letter we received from Wm. J. Ploran, manager of industrial engineering, Wico Electric Company. He cited his attendance at a regular meeting of New England Chapter 18, at which the principal speaker discussed "Gating Aluminum Die Castings," and how he profited therefrom. (The Editor.)

"The writer would like to indicate to our management that this past meeting is representative of the worthwhile material which has been made available to all the members of the Society from men with a wealth of experience, and to point out that our company's membership is well worth while."

— DCE —

$1,000 Zinc Die Casting Award

The die casting engineer's important contributions to the present stature of the die casting industry will be recognized in a $1,000 cash award to be known as "The New Jersey Zinc Company Zinc Die Casting of the Year Award." All entries must be received by the sponsoring New Jersey Zinc Company or postmarked not later than midnight, July 31, 1960.

CIRCLE 36 READERS SERVICE CARD

— DCE —

Machine Tool Exposition--1960

The Machine Tool Exposition—1960, will be held in the International Amphitheatre in Chicago, September 6-16th, under the sponsorship of the National Machine Tool Builders' Association. It will occupy almost twelve acres of floor space, in five continuous exhibit halls. Over a thousand new-model machine tools will be in operation.

— DCE —

Zinc Die Castings Show Major Gains in 1960 Cars

1960 automobiles are featuring a greater number and variety of zinc die castings than ever before, it is noted in the HORSE HEAD Bulletin of the New Jersey Zinc Company. The number of models using zinc die cast grilles has exactly doubled the 1958 total, Instrument panels contain larger and more impressive zinc die cast parts.

The average weight of zinc per car will move up substantially. Estimates show increases ranging from 4.3 lbs. on the Cadillac 4-door hardtop (90.3 to 94.6 lbs.) to 37.5 lbs. on the Lincoln (84.2 in 1959, 121.7 lbs. in 1960).

Perhaps of greater significance is the fact that some car makers who, in the past, have consistently used parts made of other metals, are switching to zinc this year.

CIRCLE 37 READERS SERVICE CARD

— DCE —

Forms New Company

George F. Griffenham, past executive secretary of SDCE has formed a new company named American Prototype Industries in Detroit, at 6441 Hastings St.

Departments exclusively for the Die Casting Industry have been set up for sight models (functional or non-functional), die cast, Shaw process patterns, die models and plasters, prototype castings, and designing and building of fixtures and gages.

Alcon Tool and Die

Die Cast Dies

Plastic Molds

Trim Dies

14560 LESURE
DETROIT 27, MICHIGAN

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CIRCLE 39 READERS SERVICE CARD

CAST METALS TOOLING COMPANY

Designers and Builders of

Die Cast Tooling

SL 4-2020 JE 6-0323

24151 Hoover

Warren, Michigan

CIRCLE 40 READERS SERVICE CARD

DIE CASTING SERVICES AND PERSONNEL OPPORTUNITIES

Space in this section is available at $10.00 per column inch (1" x 2¼") or any fraction thereof, payable in advance.

Closing date: 15th of month preceding publication.

To answer Box number advertisements, address responses to: Box ....., Die Casting Engineer, 19382 James Couzens Highway, Detroit 35, Michigan.

DIE CASTING ENGINEER with 20 years experience available after June 1, 1960. Ten years in die design—last ten as superintendent of complete operation from estimate thru production. Sales, engineering, or partnership interest. Write Box 121.

DIE CAST SUPERINTENDENT — assume complete responsibility for large die casting operation. Practical background desired. Five figure starting salary; advancement potential. Southern location. Submit confidential resume to: ADVANCEMENT OPPORTUNITIES, 15 Lewis Street, Hartford 3, Conn.

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FIRST NATIONAL
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AND CONGRESS
NOV. 8 - 11

Dis-Die Steel, Inc.

PRETEMPERED AND HOT WORK STEELS FOR DIE CASTING AND EXTRUSION TOOLS

ALL SIZES IN STOCK

SLocum 7-7500 • 21066 Ryan Road • Warren (Detroit), Michigan • JEfferson 9-7640

CIRCLE 41 READERS SERVICE CARD

Ajax Magnethermic supplies all types of Induction Melting Furnaces including: core, coreless, lift and automatic pouring. Vacuum melting and degassing applications are among their many uses. 60 cycle, motor generator, mercury arc converters, R. F. generators and the new 180 cycle Multiductor, all products of AM, are available as the power source.

THE NEW NAME WITH THE FAMILIAR RING!

Induction Melting Furnaces from 8 ozs. to 8 tons capacity,
one of many product lines of AM,
pioneer builder of induction heating equipment since 1920.

"induction heating is our only business"

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Trenton 5, New Jersey

YOUNGSTOWN DIVISION
3990 Simon Road
Youngstown 1, Ohio

CIRCLE 42 READERS SERVICE CARD

Expires 7/15/60

DIE CASTING ENGINEER

May, 1960

Name ..... Position .....

Company ..... Kind of Business .....

Street .....

City ..... Zone ..... State .....

Please send me information on items circled below.

(These are KEY numbers, not page numbers)

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144

INSIDE FRONT COVER INSIDE BACK COVER BACK COVER

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why new/improved Hotform

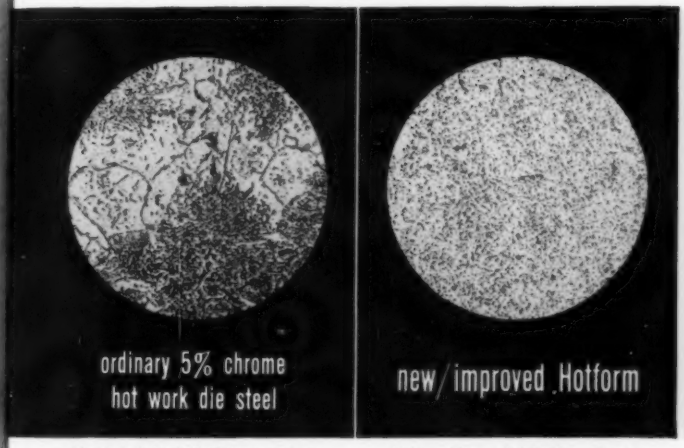
U. S. Pat. 2,883,902 July 7, 1959

offers unparalleled increases in die life and service—

corrects heat checking and cracking

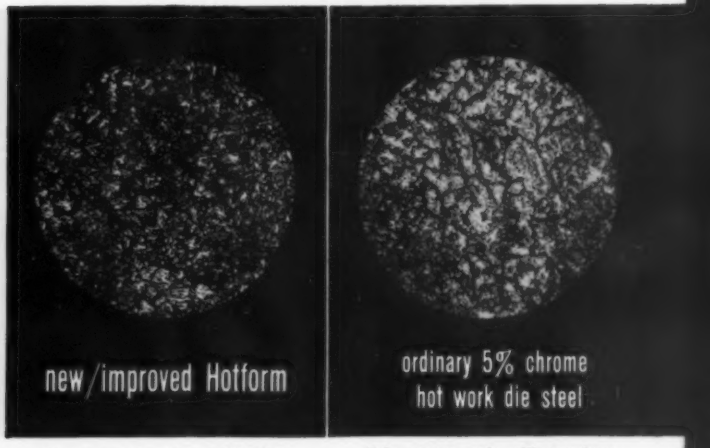
study the story these photomicrographs tell:

ANNEALED | **HEAT-TREATED ROCKWELL "C" 50**



Structure is typical of large sections of H-11, H-12 and H-13 type steels commonly on the market. Note carbide segregate and envelopes in grain boundaries. This structure persists through heat treatment to form lines of discontinuity that initiate cracks.

Note uniform distribution of pinpoint carbides—freedom from carbide segregate in grain boundaries —freedom from carbide stringers. This structure, guaranteed in New/Improved Hotform, increases toughness and ductility of heat treated dies up to 35%.



Structure of New/Improved Hotform after heat treating to Rockwell "C" 50. Note uniformity of structure that improves ductility.

Note coarse grain with envelope structure. Die failures due to gross cracking invariably possess this structure or worse.

New/Improved HOTFORM's fine, uniform structure is the culmination of an intensive research and development program to assure longer die life in service. Now, greatly increased resistance to pitting, impingement soldering and heat checking make New/Improved HOTFORM more than ever your first choice for first quality hot work dies. Let us detail the vital facts for you!

TENSILE PROPERTIES

0.505" specimens, 3 tests per condition, heat treated simultaneously

Manufacture	Size	Location of Test	Hardness Rc	Tensile Strength psi	Ductility (Red. of Area %)	% Improvement
Standard	15½" sq.	Midradius	49.6	250,000	12.9	28
Improved	15½" sq.	Transverse Midradius Transverse	49.6	256,000	16.5	
Standard	8" sq.	Center Transverse	50.3	255,000	10.7	38
Improved	8" sq.	Center Transverse	51.4	265,000	14.8	

IMPACT PROPERTIES

Charpy V-notch specimens, 6 tests per condition, heat treated simultaneously

Manufacture	Size	Location of Test	Hardness Rc	Average Impact Strength ft.-lbs.	Statistical Scatter	% Improvement
Standard	15½" sq.	Midradius	51.6	10.8	±2.9	20
Improved	15½" sq.	Transverse Midradius Transverse	51.6	13.0	±1.8	

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